USDA, National Agricultural Statistics Service

Indiana Crop & Weather Report

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CROP REPORT FOR WEEK ENDING AUGUST 21

AGRICULTURAL SUMMARY

While many parts of the state received sufficient rainfall this past week, there are still areas that are dry, according to the Indiana Field Office of USDA's National Agricultural Statistics Service. While the rain will help the soybean pods fill, many reporters feel it came too late to help a major part of the corn crop. There is expectation that corn yields will be affected.

FIELD CROPS REPORT

There were 5.1 days suitable for fieldwork. Corn **condition** is rated 41 percent good to excellent compared with 79 percent last year at this time. Eighty-seven percent of the corn acreage has reached the **dough** stage compared with 88 percent last year and 80 percent for the average. By area, corn in dough is 85 percent complete in the north, 86 percent complete in the central region and 93 percent complete in the south. Forty-three percent of the corn acreage has reached the **dent** stage compared with 49 percent last year and 38 percent for the average.

Ninety-six percent of the soybean acreage is **setting pods** compared with 94 percent last year and 87 percent for the average. Soybean **condition** is rated 52 percent good to excellent compared with 73 percent last year.

Third cutting of **alfalfa hay** is 67 percent complete compared with 62 percent last year and 63 percent for the average.

Major activities during the week included spraying for aphids and spider mites, attending the state fair, baling hay, cleaning grain bins, hauling grain to market, mowing, working on harvest equipment, and attending outlook meetings and field days.

LIVESTOCK, PASTURE AND RANGE REPORT

Pasture condition is rated 1 percent excellent, 17 percent good, 38 percent fair, 29 percent poor and 15 percent very poor. Livestock are in mostly good condition. Feeding of hay continued on some livestock farms.

CROP PROGRESS TABLE

Crop	This Week	Last Week	Last Year	5-Year Avg
	Percent			
Corn in Dough	87	76	88	80
Corn in Dent	43	22	49	38
Corn Mature	2	NA	6	3
Soybeans Podding	96	90	94	87
Alfalfa Third Cutting	67	50	62	63

CROP CONDITION TABLE

Crop	Very Poor	Poor	Fair	Good	Excel-lent
			Percent		
Corn	6	17	36	36	5
Soybeans	4	12	32	45	7
Pasture	15	29	38	17	1

SOIL MOISTURE & DAYS SUITABLE FOR FIELDWORK TABLE

	This Week	Last Week	Last Year
		Percent	
Topsoil			
Very Short	12	20	3
Short	30	33	19
Adequate	56	46	71
Surplus	2	1	7
Subsoil			
Very Short	19	23	3
Short	39	38	19
Adequate	42	39	75
Surplus	0	0	3
Days Suitable	5.1	5.7	5.0

CONTACT INFORMATION

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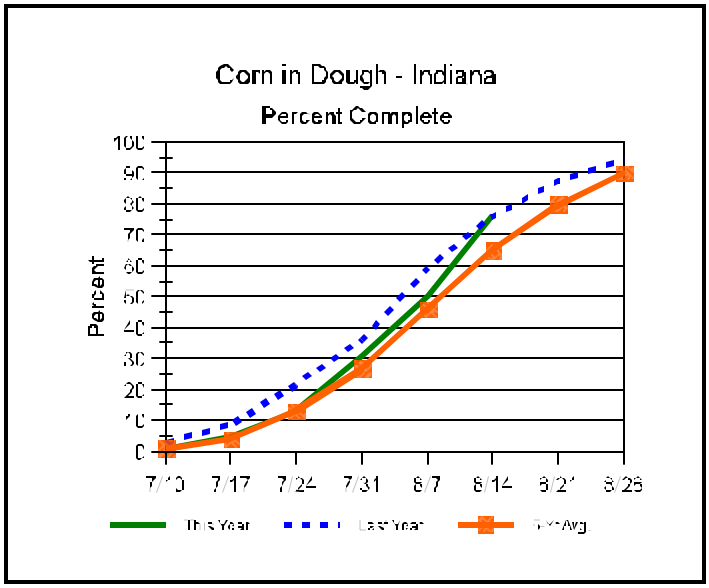
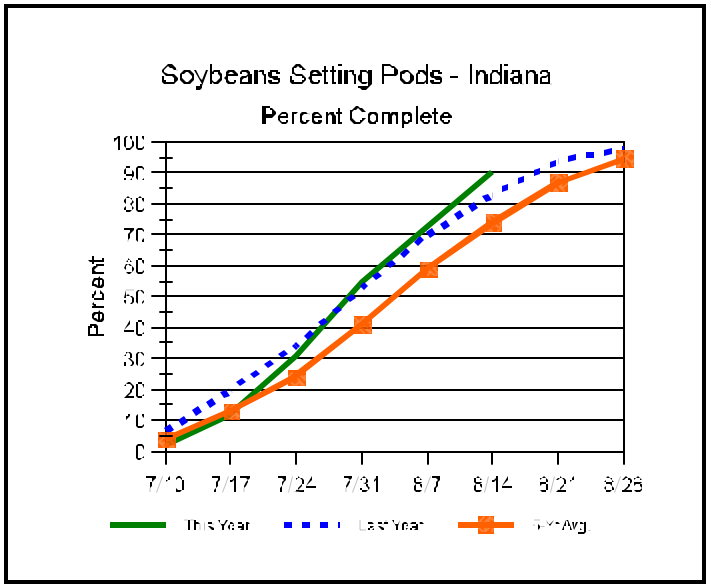
Crop Progress





Other Agricultural Comments And News

Estimating Corn Grain Yield Prior to Harvest

Fancy colored yield maps are fine for verifying grain yields at the end of the harvest season, but bragging rights for the highest corn yields are established earlier than that down at the Main Street Cafe, on the corner of 5th and Earl. Corn in IndianaSome patrons of the cafe begin "eyeballing" their yields as soon as their crops reach "roasting ear" stage. Some of the guys there are pretty good (or just plain lucky) at estimating yields prior to harvest, while the estimates by others are not even close to being within the proverbial ballpark. Interestingly, they all use the same procedure referred to as the Yield Component Method.

Other pre-harvest yield prediction methods exist (Lauer, 2002; Thomison, 2005), but the Yield Component Method is probably the most popular because it can be used well ahead of harvest; as early as the so-called "roasting ear" or milk (R3) stage of kernel development. Under "normal" conditions, the kernel milk stage occurs about 18 to 22 days after pollination is complete (Nielsen, 2004a). Estimates made earlier in the kernel development period risk being overly optimistic if subsequent severe stresses cause unforeseen kernel abortion (Nielsen, 2004b).

The Yield Component Method was originally described by the University of Illinois many years ago (Univ. of Illinois, 2005) and is based on the premise that one can estimate grain yield from estimates of the yield components that constitute grain yield. These yield components include number of ears per acre, number of kernel rows per ear, number of kernels per row, and weight per kernel. The first three yield components (ear number, kernel rows, kernels/row) are easily measured in the field.

Final weight per kernel obviously cannot be measured until the grain is mature (kernel black layer) and, realistically, at harvest moisture. Consequently, an average value for kernel weight, expressed as 90,000 kernels per 56 lb bushel, is used as a proverbial "fudge factor" in the yield estimation equation.

Crop uniformity greatly influences the accuracy of any yield estimation technique. The less uniform the field, the greater the number of samples that should be taken to estimate yield for the field. There is a fine line between fairly sampling disparate areas of the field and sampling randomly within a field so as not to unfairly bias the yield estimates up or down.

1. At each estimation site, measure off a length of row equal to 1/1000th acre. For 30-inch (2.5 feet) rows, this equals 17.4 feet.

TIP: For other row spacings, divide 43,560 by the row spacing (in feet) and then divide that result by 1000 (e.g., [43,560/2.5]/1000 = 17.4 ft).

2. Count and record the number of ears on the plants in the 1/1000th acre of row that you deem to be harvestable.

TIP: Do not count dropped ears or those on severely lodged plants unless you are confident that the combine header will be able to retrieve them.

3. For every fifth ear in the sample row, record the number of complete kernel rows per ear and average number of kernels per row. Then multiply each ear's row number by its number of kernels per row to calculate the total number of kernels for each ear.

TIPS: Do not sample nubbins or obviously odd ears, unless they fairly represent the sample area. If row number changes from butt to tip (e.g., pinched ears due to stress), estimate an average row number for the ear. Don't count the extreme butt or tip kernels, but rather begin and end where you perceive there are complete "rings" of kernels around the cob. Do not count aborted kernels. If kernel numbers are uneven among the rows of an ear, estimate an average value for kernel number per row.

4. Calculate the average number of kernels per ear by summing the values for all the sampled ears and dividing by the number of ears.

EXAMPLE: For five sample ears with 480, 500, 450, 600, and 525 kernels per ear, the average number of kernels per ear would be (480 + 500 + 450 + 600 + 525) divided by 5 = 511.

(Continued on Page 4)

Weather Information Table

Week ending Sunday August 21, 2005

Station	Past Week Weather Summary Data							Accumulation				
								April 1, 2005 thru August 21, 2005				
	Air Temperature				Precip.		Avg 4 in Soil	Precipitation			GDD Base 50°F	
	Hi	Lo	Avg	DFN	Total	Days	Temp	Total	DFN	Days	Total	DFN
Northwest (1)												
Chalmers_5W	90	60	74	+3	0.71	4		13.27	-4.66	47	2564	+211
Valparaiso_AP_I	85	57	73	+3	1.85	3		12.44	-6.12	43	2427	+283
Wanatah	86	55	72	+3	0.86	4	77	13.87	-4.24	51	2340	+288
Wheatfield	87	59	73	+4	1.03	5		18.43	+0.78	89	2437	+333
Winamac	87	61	73	+4	0.23	3	73	15.74	-2.17	53	2475	+305
North Central(2)												
Plymouth	86	59	73	+2	0.89	4		12.77	-5.42	52	2387	+116
South_Bend	84	57	73	+3	0.65	3		9.88	-7.56	50	2484	+351
Young_America	87	60	73	+3	0.21	2		16.99	-0.11	48	2459	+232
Northeast (3)												
Columbia_City	85	58	72	+3	0.23	3	78	14.58	-2.73	51	2331	+298
Fort_Wayne	87	59	73	+2	0.24	2		12.88	-3.29	51	2452	+224
West Central(4)												
Greencastle	90	59	74	+1	2.15	3		21.91	+1.59	43	2444	-63
Perrysville	99	58	75	+4	1.88	4	75	15.61	-3.73	46	2657	+314
Spencer_Ag	91	62	75	+4	1.90	4		19.92	-0.90	51	2480	+116
Terre_Haute_AFB	91	59	76	+4	0.80	2		16.66	-2.68	45	2710	+212
W_Lafayette_6NW	89	59	74	+4	0.41	3	80	12.00	-5.92	51	2525	+305
Central (5)												
Eagle_Creek_AP	88	61	75	+2	0.19	2		15.14	-3.08	47	2733	+256
Greenfield	90	60	74	+2	1.16	4		21.56	+1.48	57	2516	+145
Indianapolis_AP	90	63	76	+3	0.63	3		15.09	-3.13	47	2736	+259
Indianapolis_SE	89	61	74	+2	0.74	4		15.76	-3.16	49	2536	+76
Tipton_Ag	89	58	72	+3	0.92	4	77	19.12	+0.90	53	2342	+185
East Central(6)												
Farmland	88	56	72	+3	1.58	4	71	15.46	-2.25	50	2372	+267
New_Castle	90	56	72	+3	1.45	5		18.35	-1.02	46	2228	+74
Southwest (7)												
Evansville	95	70	80	+5	2.14	5		14.70	-3.78	45	2977	+97
Freelandville	92	66	77	+4	1.84	6		16.96	-2.29	47	2800	+220
Shoals	92	65	77	+5	0.68	4		17.74	-3.15	57	2790	+298
Stendal	96	67	79	+4	0.98	6		16.61	-4.02	44	2957	+246
Vincennes_5NE	95	67	78	+5	1.42	4	78	21.82	+2.57	51	2899	+319
South Central(8)												
Leavenworth	94	68	79	+6	1.37	5		17.45	-3.94	46	2847	+364
Oolitic	92	64	76	+4	1.56	5	79	17.80	-2.30	52	2574	+191
Tell_City	96	70	81	+6	2.35	6		17.83	-3.25	38	3115	+364
Southeast (9)												
Brookville	93	62	76	+6	1.39	6		16.49	-3.01	49	2636	+375
Milan_5NE	93	62	76	+4	1.47	6		18.58	-0.92	71	2595	+334
Scottsburg	95	66	78	+5	2.80	6		17.89	-1.92	53	2748	+183

DFN = Departure From Normal (Using 1961-90 Normals Period).
GDD = Growing Degree Days.
Precipitation (Rainfall or melted snow/ice) in inches.
Precipitation Days = Days with precip of .01 inch or more.
Air Temperatures in Degrees Fahrenheit.

The above weather information is provided by AWIS, Inc.
For detailed ag weather forecasts and data visit the AWIS home page at
www.awis.com

5. Estimate the yield for each site by multiplying the ear number by the average number of kernels per ear, then dividing that result by 90. The value of '90' represents the average number of kernels (90,000) in a bushel of corn.

TIP: Use a lower value (e.g., 80) if grain fill conditions have been excellent (larger kernels, fewer per bushel) or a larger value (e.g., 100) if grain fill conditions have been stressful (smaller kernels, more per bushel).

Example

Let's say you counted 30 harvestable ears at the first sampling site. Let's also assume that the average number of kernels per ear, based on sampling every 5th ear in the sampling row, was 511. The estimated yield for that site would (30 x 511) divided by 90, which equals 170 bu./ac.

Repeat the procedure throughout field as many times as you deem to be representative. Calculate the average yield for all the sites to estimate the yield for the field.

Remember that this method for estimating pre-harvest grain yield in corn indeed provides only an estimate. Since kernel size and weight will vary depending on hybrid and environment, this yield estimator should only be used to determine "ballpark" grain yields. Yield will be overestimated in a year with poor grain fill conditions (e.g., low kernel size and weight from a drought year) and underestimated in a year with excellent grain fill conditions (e.g., larger kernel size and weight from non-stress grain fill periods).

You can try to improve the yield estimation for unusual grain fill conditions by adjusting the estimation formula. For example, if you believe that kernel weight will be lower due to stress during grain fill, you may elect to replace the value of "90" in the equation with "100" to reflect the potential for smaller and lighter kernels (i.e., more kernels per 56 lb. bushel). Conversely, in a good crop year, you may elect to replace the value of "90" in the equation with "80" to reflect the potential for larger and heavier kernels (i.e., fewer kernels per 56 lb. bushel).

Recognize that the **Yield Component Method** for estimating corn grain yield is probably only accurate within plus or minus 30 bushels of the actual yield. Obviously, the more samples you measure within a field, the more accurately you will "capture" the variability of yield throughout the field. Use the yield estimates obtained by this method for general planning purposes only.

Related References

Lauer, Joe. 2002. **Methods for Calculating Corn Yield.** Agronomy Advice, Univ. of Wisconsin-Madison. Online at <http://corn.agronomy.wisc.edu/AAdvice/2002/A033.pdf>. [URL verified 8/9/05].

Nielsen, R.L. (Bob). 2004a. **Grain Fill Stages in Corn.** Corny News Network, Purdue Univ. Online at <www.kingcorn.org/news/articles.04/GrainFill-0705.html>. [URL verified 8/9/05].

Nielsen, R.L. (Bob). 2004b. **Yield Loss Potential During Grain Fill.** Corny News Network, Purdue Univ. Online at <www.kingcorn.org/news/articles.04/GrainFillStress-0705.html>. [URL verified 8/9/05].

Nielsen, R.L. (Bob). 2005. **Kernel Set Scuttlebutt.** Corny News Network, Purdue Univ. Online at <www.kingcorn.org/news/articles.05/KernelSet-0809.html>. [URL verified 8/9/05].

Thomison, Peter. 2005. **Estimating Yield Losses in Drought Damaged Corn Fields.** C.O.R.N. Newsletter, Ohio State Univ. Online at <http://corn.osu.edu/story.php?setissueID=96&storyID=571> [URL verified 8/9/05].

Univ. of Illinois. 2005. **Estimating Corn Yields.** (An Online Calculator). Illinois Agronomy Handbook. Online at <www.ag.uiuc.edu/iah/index.php?ch=ch2/est_corn_yield.htm>. [URL verified 8/9/05].

For other Corny News Network articles, browse through the CNN Archives at <www.kingcorn.org/news/archive.html>. For other information about corn, take a look at the Corn Growers' Guidebook at <www.kingcorn.org>.

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